LIBRARY OF CONGRESS
JAN
3
1918
PERIODICAL DIVISION

SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

Volume VI | SATURDAY, DECEMBER 29, 1917 | Number 157

CONTENTS

The War and Secondary Schools: ROBERT J. ALEY 751

A Possible Core for a Program in Agricultural Education: THEODORE H. EATON 755

Educational Events:
Emergency Courses in Horticulture; College Students and the War; Military Training in the Schools; Federal Grants to States for Vocational Education 761

Educational Notes and News 763

Discussion and Correspondence:
The Inadequacy of Arguments against disciplinary Values: CHARLES N. MOORE 767

Quotations:
Science in Examinations 770

Books and Literature:
New Books in the Field of English: J. F. H. 771

Drop the Catch Words 773

Educational Research and Statistics:
Evaluation of Merit in High-school Teachers: F. C. LANDSITTEL 774

$3.00 A YEAR | PUBLISHED WEEKLY | 10 CENTS A COPY

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

NEW YORK CITY: SUB-STATION 84

Entered as second-class matter January 2, 1915, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879

Educating for Productiveness

"Society is demanding greater efficiency on the part of the producers—the men and women who feed, clothe, and shelter society. This demand can only be met by giving the producers an education that will function in greater social and vocational efficiency."

Do you know about Macmillan Books for High School Agriculture?

GENERAL TEXTS	Bailey's Principles of Agriculture	$1.25
	Warren's Elements of Agriculture	1.10
CROPS	Harris and Stewart's Principles of Agronomy	1.40
	Livingston's Field Crop Production	1.40
SOILS	Cunningham and Lancelot's Soils and Plant Life	1.10
	Lyon's Soils and Fertilizers	1.10
FARM ANIMALS	Harper's Animal Husbandry	1.40
	Eckles and Warren's Dairy Farming	1.10
LABORATORY MANUALS	Call and Schafer's Laboratory Manual of Agriculture for Secondary Schools	.90
	Gehrs and James' One Hundred Exercises in Agriculture	1.10
A FEW SELECTED BOOKS FOR REFERENCE	Bailey's Principles of Vegetable Gardening	1.60
	Jordan's Feeding of Animals	1.75
	King's Irrigation and Drainage	1.60
	Mayo's Diseases of Animals	1.75
	Ogden's Rural Hygiene	1.50
	O'Kane's Injurious Insects—How to Recognize and Control Them	2.00
	Roberts' Fertility of the Land	1.50
	Voorhees' Fertilizers	1.50
	Warren's Farm Management	1.75
	Weld's The Marketing of Farm Products	1.60
	Widtsoe's Principles of Irrigation Practice	1.75
	Cyclopedia of American Agriculture, 4 vols	24.00
	Standard Cyclopedia of Horticulture, 6 vols	36.00

Send for the Macmillan Catalogue of Books on Agriculture

THE MACMILLAN COMPANY

64-66 FIFTH AVENUE, NEW YORK

CHICAGO BOSTON SAN FRANCISCO ATLANTA DALLAS

SCHOOL AND SOCIETY

Volume VI SATURDAY, DECEMBER 29, 1917 Number 157

THE WAR AND SECONDARY SCHOOLS[1]

THE importance of secondary education is well recognized. The increasing complexity of modern life has made secondary education for the masses almost as necessary as was elementary education a few decades ago. If the intense work of the present is to be maintained and the additional necessary work of the future well done, secondary education must be strengthened and improved. Much of the important work of the reconstruction period following the war as well as most of the scientific work during the war must be done by highly educated men. These men must come from the colleges, technical schools and universities. These institutions can not produce them unless the secondary schools furnish the proper preparation.

From the very beginning of the war, our government has insisted that the work of education should go on with as little interference as possible. Cabinet officers and the commissioner of education in many utterances have set forth the importance of this work. The representatives of foreign commissions who have visited our country have all expressed the same idea. We are, therefore, sure that our national government believes in the importance and efficacy of educational training. The appointment of an Advisory Commission to the Council of National Defense having as one member, Hollis Godfrey, of Drexel Institute, representing education and engineering, has given education the highest official recognition. By the terms of the federal act, education is thus officially recognized as a national resource. This recognition means much for the present and will certainly have great bearing on the future development of the educational work of this country.

Educational institutions and educated men have given a remarkable patriotic response to the demands of our government caused by the war. Graduates of colleges, undergraduates and the older students of secondary schools have enlisted in large numbers—numbers entirely out of proportion to the class to which they belong. The government has called upon educated men to come to Washington for special service as well as to carry on many of the important activities of the government in their own states. While this response has had the effect of depleting the teaching force of the country and reducing very greatly the number of students, it is after all a high tribute to the character of the work that our educational institutions have been doing. They have not failed to teach real patriotism.

While the great mass of teachers have exhibited the finest type of loyalty, there have been here and there a few examples of disloyalty, sometimes approaching very near to treason. The school authorities have been active and have weeded out most of those who have shown pro-German tendencies. In the time of a great world struggle like the present one, the teachers of the youth of America should be of outspoken loyalty. No teacher should be employed for whom an apology is necessary. Every teacher should be a citizen of this country.

[1] Address before the New England Association of Colleges and Secondary Schools.

Those of foreign birth should be so completely naturalized that all trace of the hyphen has been removed.

In every great crisis, there are many people who think that some short cut to efficiency should be discovered and put into immediate operation. The present is no exception. We are asked to shorten the time of secondary education and to replace studies of proven worth by those that would seem to minister to immediate needs. These requests, although somewhat disturbing, should not be yielded to. The careful student and observer of educational progress knows that educated men and women of value are produced by hard and continuous study of the great fundamental bodies of truth that the world has found useful and necessary. It doubtless is true that under the stress of the present emergency we should speed up the work of education. The very earnestness that the troubles of the world produce may be used to advantage in doing more and better work. In order to meet the labor situation connected with the growing of crops and in other important industries, it may be necessary to shorten the term and change somewhat the vacation periods. Where these things are done, the work ought to be made so intense that the achievements of the shortened year will be as nearly equal to normal accomplishments as possible.

The secondary schools of the country have enormous plants of buildings, laboratories, libraries, shops, gymnasiums and playgrounds that are only used a fraction of the time. Preceding the war, movements were on foot in various parts of the country to use these plants more efficiently. Now is the time to put these plans in operation. Evening and late afternoon classes for adults and employed young people should be arranged. The assembly rooms should be used for lectures upon all phases of the war, production and conservation.

In many secondary schools, the classes in the manual arts or in vocational subjects might, with increased interest and educational value, be engaged in the production of actual war material. The girls could make various articles of clothing, Red Cross and hospital materials, and the boys could produce parts of munitions and various other small articles that are necessary for the equipment of our troops.

Many secondary schools, by extra effort but at slight expense, could offer a variety of valuable short courses. These might include conversational French and Spanish, telegraphy, telephone construction, operation and maintenance, wireless and various other subjects for which an immediate need exists.

The development of our relations to Germany has caused a revulsion toward the teaching of the German language. Already a marked decrease in the number of students taking this language is noted in secondary schools and colleges. This tendency is likely to continue for some time. It probably ought to be permanent. Our secondary schools would certainly do better to emphasize French and Spanish. We shall certainly have far more relations with France in the future than we have had in the past. If we are to establish new lines of trade with the South American states, it will be necessary for us to have a large number of people familiar with the Spanish language. We should not, of course, entirely eliminate the study of German. There will continue to be use for this language. In the future, the American who knows German should know it for practical purposes and not as an accomplishment. It is very important, however, that the teachers of German in our secondary schools and colleges be men and women of

undoubted loyalty. This will mean that in general they will not be of German blood, or, if of German blood, far removed from the Fatherland. It is very important that no opportunity be given in the schools of the country for the German propaganda that has produced the traitors and plotters that are now giving the government so much trouble.

The subjects of history and government furnish unusual opportunities for constructive teaching. To-day for the first time the soldiers of America are fighting side by side instead of face to face with the soldiers of the other English-speaking nations. The English-speaking people of the world are responsible for the ideals that we hold most dear. The English-speaking people have stood for and developed personal liberty, law, order, individual opportunity and national responsibility. The best things in our government and our institutions are of English origin. The high school has a fine opportunity to revise the teaching of American history so that these fundamental origins may be understood and appreciated. Such teaching will knit us closer to the other English-speaking peoples of the world. The old prejudices and misunderstandings must be wiped out. The safety of the democracy that we believe in depends upon the cooperative union of the democratic peoples of the world. The proper teaching of adolescent youth will make that union possible and permanent.

Much of the time of our government is wasted to-day in contradicting unfounded statements regarding intentions and practises. As a result of the muckraking of the last decade, we are a very credulous people. We are willing to believe anything we hear, particularly if it is evil. We have but little faith in the integrity of our officers or the stability of our institutions. The secondary schools of the country may very profitably use the present opportunity to teach a greater faith in the integrity of men, in the honesty of their purposes and in the fundamental soundness of our institutions. The many serious charges the government is compelled to refute will furnish splendid material for use in such teaching. The fine work that the government is doing in its various departments, the wonderful accomplishments of the past few months and the great state papers of our President should all be used to show that our institutions are strong enough to meet the stress of great crises.

For a good many years, our perspective of human knowledge and culture has been greatly askew as a result of German influence. Many of our students have gone to German institutions. Under the spell of German professors they have been led to believe that human learning, culture and progress were all in the keeping of the German people. Since 1914 these claims have been reviewed. We now know that the claims were grossly exaggerated. It is a good time to review the origins of learning and culture, and fix in our minds the fact that much of it did not come from the Teuton. The period of secondary-school life furnishes a fine opportunity for young people to get the correct perspective of human knowledge, progress and culture. We should take advantage of the opportunity.

It would be an interesting performance in any high-school class to assist the young people to make a list of a score of the world-revolutionizing inventions and after the list was made to determine the country and the individual responsibility for each. Such a list would doubtless include the steam engine, the electric telegraph, the Atlantic cable, the electric light, the sewing machine, the telephone, the submarine, the phonograph, wireless telegraphy and

the aeroplane. These have all been revolutionary in their effect. Singularly enough, not one of them is credited to a German source.

In the study of physics in the secondary schools, interest will be increased if some of the great contributors to the science are known. In the history of this science, we would certainly include Carnot, founder of modern thermodynamics, Laplace, author of the nebular hypothesis, Foucault, the first demonstrator of the earth's rotation, Becquerel, discoverer of radioactivity, Curie, the most famous worker in radioactivity—all Frenchmen; Newton, by common consent, the world's greatest scientist, Lord Kelvin, famous for his many inventions and for his work in mathematical physics, Maxwell, founder of the modern mathematical theory of electricity, Thompson, the present greatest worker in radioactivity, Rayleigh, the authority in light and sound—all Englishmen; Franklin, noted for his researches in electricity, heat and meteorology, Henry, father of the modern dynamo, Edison, the world's greatest inventor, Michelson, Nobel prize man and authority in optics, and Milliken, next to Thompson, the greatest worker in radioactivity—all Americans.

In biology, hygiene and medicine, many great names occur with which every one should be familiar. In general biology there are Darwin, Wallace and Lamarck, originators and developers of the idea of evolution. The pioneer in systematic botanical classification was Linnæus, a Swede. Some of the great contributors to the perfecting of classification are Tournefort and Antoine de Jussieu, Frenchmen; Robert Brown, an Englishman, and Gray, an American. The mutation theory was originated by DeVries, a Dutchman. Buffon in France, and Huxley in England were the great popularizers of science, particularly zoology. In medicine, Harvey, the discoverer of the circulation of the blood, Lister, the originator of septic surgery, and Pasteur, the beginner of the fight against germ disease, are names to conjure with.

The great increase in the use of mathematics, particularly in its application to the various kinds of engineering and statistics, makes this an opportune time to increase interest in this fundamental science. Here as in physics, some knowledge of the men of genius who have developed the science will be interest-provoking and inspiring. Early mathematics of the synthetic type was brought to a high state of perfection by the Greeks. Mathematics of the analytic type, of inestimable value in practical affairs, is of modern development. Some of the great geniuses responsible for modern mathematics are Newton, Caley, Sylvester and Hamilton—Englishmen; Fermat, Descartes, Pascal, Fourier, Cauchy, Hermite, Lagrange, Laplace, Legendre, Galois, Darboux, Jordan, Picard, Appell and Poincaré—Frenchmen.

The subjects I have used are but types of all other subjects of fundamental knowledge and culture. An investigation will show similar conditions in agriculture, chemistry, education, engineering, philology, history, comparative literature, astronomy, philosophy, politics, music, art—indeed in everything of either practical or cultural value.

To sum up: The world war has increased the importance and enlarged the opportunity of the secondary school. The school should speed up and intensify the work in the curricula of established and proven value. It should take advantage of the present opportunity to do the following things:

1. Weed out all teachers of doubtful loyalty.

2. Where necessary, shorten terms and change vacation periods.

3. Use the plant and equipment for afternoon and evening schools.

4. In manual training and vocational departments, make useful products.

5. Provide short courses in certain subjects.

6. Emphasize the study of French and Spanish rather than German.

7. Teach history and government so as to emphasize our relations to English-speaking and democratic peoples.

8. Teach a larger faith so as to reduce credulity.

9. Give a right perspective on the origin and development of knowledge and culture.

ROBERT J. ALEY
PRESIDENT OF THE UNIVERSITY OF MAINE

A POSSIBLE CORE FOR A PROGRAM IN AGRICULTURAL EDUCATION

AGRICULTURE in the narrowest sense is the art of cultivation of the fields. In the modern technical sense it is that organized body of facts that lies back of effective skill in the control of plant and animal life. In the broadest sense it is the way of life of those who live from and upon the land directly.

In the first sense the prime requisite to success is skill in the hand and machine processes of tillage; in the second, knowledge of the laws that govern successful production; in the last, not only skill in the art, knowledge of physical, chemical, biological and sociological principles, but also insight into and appreciation of the meaning of the life of the farmer.

Agricultural education, then, may mean apprenticeship in the processes of husbandry, scientific instruction in the technology of production from the land, or preparation for intelligent entering upon the life of a farmer.

There are three aspects to the aim of agricultural education: the *pre-vocational*, the *vocational* and the *liberalizing*. It should give opportunity for sympathetic and intelligent election of an occupation; preparation for the productive activities of that occupation, and insight as to the implications of a great social activity.

In order to the working out of any plan for agricultural education that offers opportunity for the acquisition of intelligent readiness and adaptiveness to the possible or prospective life of an American farmer, some analysis of that life should be made as a guide. The more specific and detailed that analysis, the more useful it is likely to prove. But there are many reasons why a specific analysis of the life of the farmer can not be made. The two factors most concerned in the determination of that life, the individual and his environment, are highly variable. Farmers vary in characteristics, surroundings, problems and successes as other men do. There are all kinds of farmers and all kinds of farms in all kinds of places. It may be possible to make analysis of the factors necessary to successful life as a market gardener on the Jackson farm in the town of Warwick in the year 1917. It is fairly possible to make a more general analysis of the factors of successful life on a dairy farm in the New England states. Indeed, it is very desirable that such general analyses of different types of farm life in various regions be made, if we are to succeed in a close adaptation of the educative process to individual and community needs. But, under a democratic form of government it is not possible to prognosticate with sureness that any boy will become a farmer, much less that he will take up a certain definite type of farming in a known locality. The problem in any general scheme becomes one of study of the type activities, so far as such exist, inherent in a life spent in production from the soil. From such a

core it may be possible to expand in any direction that local, individual and school needs may dictate.

Further, it is to be considered that, though agriculture as a subject may become static, agriculture as a life is, *ipso facto*, dynamic and changing. The farmer lives in an environment of constant immediate physical change and of more or less remote, but decidedly meaningful, social change. Hour by hour he must face the vicissitudes of weather, day by day the fluctuations in health and disease of foes and friends to his living tools, week by week the variations in growth and maturity of the creatures with which he deals. Machines, methods, transport, markets, neighborhoods, all change abruptly, gradually, insensibly as time moves on. He himself changes too. Any analysis, then, however swift and generalized, is subject to the fate of the analysis of protoplasm. When it is made it is of a thing perished, lacking the very element that makes it what it is.

Nevertheless, I have ventured to assemble and crudely to classify certain activities that seem to me common to the lives of farmers in America and that may serve as a rough, if not ready, guide to those activities in which the learner must participate if he would become reasonably well fitted to undertake the living of a farmer's life.

For the sake of clearness and to avoid, so far as may be, repetition, the generalized items of classification of the activities of the farmer's life are followed by suggestive possible activities of the learner in two or more of three categories: (1) Primary activities for the acquirement of first-hand meanings and a greater or less degree of skill; (2) secondary activities for organized knowledge and adaptability to varying situations; (3) tertiary studies for the sake of insight and appreciation. Abstruse as these categories may seem when stated baldly and alone, I think that their meaning and usefulness will become clarified in the development of the plan indicated.

First of all it is to be noted that the farmer has worked out methods of meeting the problems of life that have enabled him to survive; second, that he is constantly meeting situations in which novel elements occur, so that to succeed in life his methods of meeting problems are continually modified. There is in his life a constant interplay of the factors of stability and of progress. For the learner the fact indicates the necessity for participation in projects that are of proved value in American agriculture, and in projects that give promise of most successfully meeting new problems in agriculture. The first-hand practical experiences of the learner, from which he derives the basis of meaning for further study, must be of the proved and of the proving sorts. Moreover, they must be typical of both. By typical I mean carrying in them principles of wide use or applicability. Thus a project in the growing of a corn crop is a survival type project of proved usefulness in American agriculture and involving principles of very general use and applicability; a project in the protection of a litter of pigs through the use of hog cholera serum is one typical of the attempt to meet new problems in the field of agriculture and involving principles of wide use and adaptability, yet it is a variant from the tried procedure of generations of farmers. So much is indicative of the selection of practical experiences for the pupil in all cases under the plan. For the enlargement of meanings under the last two categories he must in all cases make use of the sources of knowledge in men, books and things.

The farmer is, most obviously and characteristically, a producer. His success as

an individual and his worth as a member of society are largely determinate upon the margin beyond his own immediate needs and those of his family that his labor produces. By the width of this margin is limited his own freedom for participation in activities and interests beyond the production of the necessities of food, clothing and shelter. By the width of this margin, too, in the aggregate are limited the social and industrial undertakings that give character to civilization. The farmer who can produce no margin beyond his immediate needs is tied for life to the treadmill; the people whose farm labor produces nothing beyond the needs of the laborers is a nation of peasants, bound down in poverty and ignorance.

The type project of the learner, then, must include a complete cycle of production, whether it be through plants from seed selection to harvest and sale, or with animals from birth to maturity and sale or use. The margin of income over outgo must be measured not only because of its social import but for obvious psychological reasons. That means careful observation, recording and accounting throughout the course of the productive undertaking. Out of the type project should develop the necessity for analysis of the factors in successful production from the farm, or a study of the technology of agriculture in its relation to the physical and biological sciences; from this again the import of the life of the farmer in the world through study of industrial and social history, economics and sociology.

A full cycle of production involves both primary and secondary factors, or, as the older economists put it, *production* and *distribution*. The farmer must grow his crop and put it within the reach of the consumer before the cycle is completed. In primary production the farmer deals with plants and animals in terms of the storage of energy or growth. In this he differs from most producers, since there is resultant from his labors not merely a changed material form of energy, but an accumulation in storage equal to or superior to the amount involved in labor. The obvious project is the growing of a crop or the rearing of animals of economic value; the technology a study of plants and animal metabolism, and the implication study of biology, chemistry, physics.

The metabolism of plants and animals is a manifestation of natural law in nowise dependent upon man. The farmer's success comes not from a knowledge of the processes and principles involved, but from skilful intervention in the process. The study of the physical and biological sciences in the pure science aspect should teach the student of agriculture every principle necessary to the growth of living things, but it does not teach him to select those factors of which he may make most effective use. For instance, climate is a determinate factor as well as the soil, but the farmer can do little in the modification of climate. Intervention through modification of the structural arrangement of the soil particles gives a measure of control over plant growth.

In the practical sense there are two chief means through which the farmer assumes the direction of the storage of energy in plants and animals. The first is by *selection*, the second by *nurture*. *Selection* is determined in accordance with *individual merit* in respect to the needs of man and adaptation to physical environment, as soil and climate. On the other hand, selection is made with respect to *heredity*, or the ability to perpetuate in offspring desirable characters. On the practise side the pupil should make choice of breed and variety, should select from the hill or head and test, seeds, tubers, scions and the like; engage in comparative and

point judging of seeds, fruits, roots, tubers and of poultry, cattle and other farm animals. He should select and mate pens of poultry or pairs of other animals; undertake the pollination of flowers, and the propagation of plants by cutting, grafting, budding, layering, division and the like. In the technology of agriculture he should study types, breeds and varieties; plant and animal characteristics of economic and esthetic value; characteristics of hardiness, fecundity, adaptability; plant and animal breeding; pedigrees and their effect. In order to place values in their relation to the scheme of the natural world and man he should enter the fields of history of domestic races and varieties, ecology, geographic and geologic distribution, genetics and the theories of evolutionary development.

Control through *nurture* consists in providing an environment favorable to growth and propagation by proper sheltering, handling and feeding, and by affording protection from diseases and enemies. Type projects will include the cultivation and spraying of intertilled and tender crops, the planning and construction of poultry houses and appliances, or housing for other animals, the feeding, management and protection of young and mature animals. Technological study will cover the chemistry of plant and animal life, the physics and chemistry of soils, tillage, manuring, drainage, irrigation, plant and animal pathology and sanitation, economic entomology, feeding; and the implications lead to botany, zoology, geology and geography, as well as to the sciences already mentioned.

The instruments through which the farmer controls his plants and animals to economic ends are three: (1) Land—which, as a member of society, he must leave as useful a means of production as he found it. (2) Capital—in buildings, machinery, tools, and (3) labor of men and animals. In the use of these agencies the learner must have experience and a modicum of skill. To attain these he must make use of land as owner or responsible agent. It is not enough that he be given land to use for his garden crop. For the use of that land he must make return and assume responsibility, any consequences of misuse to fall upon him, all profits of right use to accrue to him. And the same is true of the use of tools and machines. To borrow his father's or his neighbor's hoe and cultivator, to return the one dull and the other with a broken tooth, however polite the thanks, is no training in the responsibility of production. Tools and machines should be owned or hired, and the responsibility for use and care placed where it belongs. The use of a horse or horses with an accurate accounting of horse labor is of first-class importance. But in the use of man labor it is not often that the boy can be given the charge and responsibility that he must assume as a farmer. A definite charge accounting for his own hours of labor will tend to an intelligent direction of it and a responsibility in effort that is highly desirable. The technological studies attendant upon the practise will emphasize the subjects of farm mechanics and farm management, dealing with the physics and economy of machines and implements and the relations of soils, climate, topography, markets, type of farming, layout, yearly and seasonal distribution of labor, size of farm, capital investment and many other factors, to that "labor income" which constitutes the money measure of the productive margin, and with the making and, particularly, the interpretation of cost accounts. Almost inevitably such study leads into the general field of the economics of production.

In the secondary phase of his activities of production the farmer deals with plants

and animals as commodities for distribution and sale. By his skill or by his lack of it, in this field he may fully conserve or totally lose the margin that he has produced as controller of the storage of energy. Several factors enter to determine his success in marketing. Among them are his choice of a market, his choice of a product in accordance with the needs and limitations of that market, the proper grading and standardization of the product to facilitate profitable distribution, the packing, and often the storing of the product, and finally the delivery of the product to the middleman or consumer. The learner, then, should visit, study, and if possible undertake bargaining at various markets, wholesale, retail, or even from house to house. Into his selection of his products should enter definitely consideration of the needs of markets within his reach. He should grade and pack according to real market standards, grains, vegetables, fruits, eggs, poultry, butter, cheese, cream, or other products; store grain, potatoes, cabbage, apples, eggs, and so on, and finally make delivery of his product himself. Throughout he should make observation, record, and accounting of the cost and worth of his marketing methods.

The obvious technological study will be of consumers' needs, supply and demand in seasonal fluctuation; of stable, perishable, staple and fancy products and the grades and standards required in each; of methods of packing and storing; of means of transportation with particular respect to speed, cost and availability. Here again the implications lead immediately into the field of the economics of distribution, if not into psychology and sociology.

Out of the very nature of his calling as producer the farmer becomes a purchaser. He must look at land, equipment and labor, from the viewpoint of the consumer. He must know how to hire and buy as well as to grow and sell. Here, for the learner's practise, we revert to land, tools and machinery, and labor accounting once more. It is not enough that the student work with owned or hired land, tools and horses. He should do the purchasing or make the arrangements and the bargain of hire himself. Whenever necessary and possible, as in harvest time, or in construction projects, he should employ fellow students and direct their work. Studies lying back of such practise will include land values, the types, uses, durability, arrangement, efficiency, of buildings and appliances, etc., from the point of view of the buyer, and will readily enlarge to a study of the economics of consumption.

The home life of the man on the farm is more closely bound up with his occupation than that of men in other modes of life. The home is an integral part of the farm, the farm an extension of the home. A factory worker may live without a home, a city club man does exist without one, but hardly a farmer. As husband and father the farmer shares in the provision of food, shelter, clothing, for his family, in the care for their bodily and spiritual well-being, their health and education, in the giving of enjoyment and of protection to them.

It is not possible to put the student through an apprenticeship as husband and father, but there are many things that he can do that are of immediate and preparatory value. For instance, he should have a definitely responsible function in the home, a regular job, or regular chores that are of importance in the life of his home. Let him buy a meal and cook a meal now and then, that he may come to an appreciation of the burden his wife is to bear and gain that modicum of skill in preparing family meals so often necessary in the isolated farm home. A brief course in plain

and camp cookery is an interesting and useful means to preparing the boy to meet some of the farmer's home problems.

Let the boy buy his own clothes from time to time, take care of his own room, look after the younger children, if there be such, occasionally. Encourage systematic cleanliness and neatness in regard to person and belongings, the playing of games with other boys, regular exercise, singing, playing an instrument, however painful the initial stages, and like enjoyments. Lessons in first aid, in swimming and rescue, and even the incurring of insurance charges on life and property, when the earning stage is reached, all have value in preparation for the life of the head of a farm home. In school, brief and carefully adapted courses concerning healthful and economical foods, houses and house conveniences, textiles and clothing, the meaning of home and school training, insurance, safeguards, first aid and preventive medicines, hygiene and home sanitation, have an important place. Even more, perhaps, are important, directed games and physical exercise, music and appreciation in literature.

From such training the transition to more advanced studies in music, art, literature, physiology, psychology and education, is natural and easy.

In spite of the isolation of his life, his unusual responsibility, and need for initiative and resourcefulness in the management of closely bound home and occupational activities, the farmer has need of the attributes of the type socius. He is companion, friend, lender, borrower, cooperator. In preparation, then, the learner must participate in cooperative effort, giving and receiving assistance in games and work. Cooperative projects bringing boys together with a sense of mutual responsibility are not easily arranged. Too often they are competitive rather than cooperative, as in egg-laying contests, pig club contests, and the like. An organization of boys engaged in production, for the grading, standardizing and marketing of their products, is strictly cooperative and directly in line with an important movement to the solution of a difficult problem of country life. Some of the bol-scout work is of the same character.

School studies in rural economy, rural sociology and rural law, in parliamentary organization, rational conventions and moral standards should tend to enlarge the meaning of cooperative effort. Out of these studies open, at least, the fields of history and ethics.

Under a democratic government, as a member of organized society, as a citizen, the farmer engages in useful activities. He is a voter, taxpayer, cooperator in community betterment in many ways, as in the promotion of improved transportation, beautification, conservation of resources and institutional betterment in church, school, grange, club, lodge and town government. Though the boy may not vote in elections or debate in town meetings, yet he may and should attend both. He should be an active member in some self-governing body, preferably serving some real community need, where he may both debate and vote upon matters of real importance. He should pay taxes upon his project property. As member of a body he should enter into work of local betterment, as in cleaning up roads, lawns, the home place, the school yard; in destroying caterpillars, flies, mosquitoes, disposing of waste, canning and preserving, protecting trees and birds, discouraging filthiness, profanity and loafing, and in many other ways.

Studies of civic conduct and obligations, of local, state and central government, the assessment and expenditure of public monies, of local traditions and ideals and the ideals of rural life, merging into the

larger studies of civics, government, law, and even philosophy and religion, again may well grow up from the basis of his first-hand experience as a member of society.

It is evident that in the development of such a core of the educational program for rural living, no one institution can appropriate to itself all. The home, the community, the club, the elementary school, the secondary school, the library, the church and the agricultural college, are all concerned. There is no better agency for the provision of the practical experiences than the home and farm, but, commonly, planned undertakings must be under the direction of the trained educator. Both the boys' club and the elementary school may function well in the provision of the basic experiences. Almost inevitably the well-organized and supervised country school will come to be the prime agency in the initial stages of preparation for rural life. The high school with an adequately trained teacher of agriculture may develop further the practical experiences and enter into the elementary technology and science training. The agricultural college does provide for a more advanced technique and a broader technology, and should develop much further than it does the meanings that lie back of life upon the soil.

The determination of the field of each of the school agencies in a program of agricultural education is a problem of local and state conditions. No hard and fast delimitation is possible or desirable. Hard thinking, close study of what has been done and is being done, and patient experiment will tend to coordinated effort, without friction and waste.

But under whatever agency or through whatever intelligent development of this core of suggestion, I believe that there is room for growth of three aspects of character outstanding in the life of the good American farmer—responsibility, initiative, resourcefulness—and for the enlargement of one not uniformly so outstanding, namely, intelligent sympathy.

THEODORE H. EATON

EDUCATIONAL EVENTS

EMERGENCY COURSES IN HORTICULTURE

THE faculty of the New Hampshire College has decided to introduce into the curriculum three new agricultural courses which will be popularly known as the agricultural war courses. They are to be agronomy 102, horticulture 102 and horticulture 104, and are for the special training of students who expect to engage in some form of war gardening this spring. Last year the college sent out nearly 300 men to engage in agricultural work, to help in food production and many of them were leaders in various community, factory and home-garden enterprises. This year, with these war courses, the college hopes to give these men special training. The word man is used generically because the courses are open to women and it is expected many women will take them.

The first course, that in agronomy, has to do with staple crops and fertilizers. This will deal exclusively with the growing of potatoes, beans and sweet corn, including selection of seed, planting, methods of culture, spraying and harvesting. The matter of commercial fertilizers and farm manures will be discussed from the standpoint of the present war situation.

In horticulture 102, the subject is "War gardening." It will deal with the planning and operation of the community, school, home and factory garden. It will include a study of sites and soils, fertilizers and manures for gardens, planning the garden, kinds and varieties of vegetables to grow in this state, how to grow the plants and the storage of the vegetables in the fall.

Horticulture 104 is to be devoted to practical fruit growing. It is designed with it to meet the needs of supervisors of gardens whose duties will also include some work with orchards. It will treat the subjects of prun-

ing, spraying, grafting, a study of small fruits and their culture, together with the storage of fruits for winter use. The last week of the subject will be devoted to the study of bee-keeping, which is designed to stimulate the greater production of honey in the state.

These subjects will be given three hours a week for five or six weeks and the student who takes them will be credited with one college-hour. The lectures will probably be given late in the afternoon.

COLLEGE STUDENTS AND THE WAR

As the undergraduates of Yale University were about to go home for the Christmas recess, the University Emergency Council took occasion to repeat the appeal to the younger students to remain in college. The memorandum is here given:

As the students of Yale University are soon to return to their homes for the Christmas vacation, the members of the Emergency Council collectively and individually wish to call their attention and that of their parents to the following statement issued by the council in May, 1917, which is in harmony with the advice recently given by the government authorities:

> The council believes that most young men and boys below the age for Officers' Training Camps or conscription can at present render the country the highest patriotic service by continuing their education, resisting the natural impulse to volunteer "for the period of the war" in some one of the many special units recently formed, whose members sometimes sacrifice their greatest ultimate usefulness to the nation for lesser immediate service. Let students go on with their school course and with their regular college or professional work, especially if the latter be in such departments as medicine, chemistry or engineering, where the demand for thoroughly trained men is pressing and sure to continue. The war is liable to be a long one, and it is a matter of great importance that the United States should not repeat England's mistake of losing an undue proportion of the best equipped young men through early enlistments as privates, when in most cases these same men could render larger service by continuing their regular education and fitting themselves ultimately to become officers.

The seven months which have elapsed since this statement was made have only increased our conviction of its wisdom, as it is now clear that we must be prepared for a long war, and that the most important and difficult thing to meet will be that of a steady supply of officers combining military knowledge and experience with power of leadership, strength of character and well-trained minds. There is no place in the world where these latter characteristics can be better developed than at a university, while at Yale we are especially fortunate in being able to supply also remarkably good facilities for military training, which we have reason to expect will be still further strengthened in the near future, both on the army and navy sides.

The undersigned [President Hadley, Secretary Stokes, Treasurer Day, Dean Jones, Director Chittenden, Admiral Chester and Captain Overton] therefore urge all men below the draft age to continue their work at the university, and to do this with earnestness and enthusiasm as representing for them in the great majority of cases the call of patriotism and duty.

MILITARY TRAINING IN THE SCHOOLS

SENATOR GEORGE A. SLATER, of Westchester county, author of the law that was designed to bring about compulsory military training in the high schools, preparatory schools and colleges of the state, announces, according to the New York *Evening Post*, that during the 1918 session of the legislature he would offer amendments to the statute to tighten the compulsory provisions. The law went into effect at the opening of the school terms last autumn.

The State Military Commission has found itself powerless to compel attendance at drills. Under the law students who can show they have other duties to perform during the drill period are excused, with the result that in some schools the majority of the students find they have engagements that always fall during the drill period. In the DeWitt Clinton and Stuyvesant high schools it is stated by the military instructors that there appears to be a concerted effort on the part of many pupils

to avoid drills. Recently the College of the City of New York, through the dean, was compelled to announce that students who did not attend drills, unless excused, would be expelled.

Senator Slater said that a study of the system showed that in New York City there existed an antagonism to drilling on the part of students born in a foreign country, or whose parents were foreign born. There will probably be an effort to amend the law so as to make military training a part of the curriculum of every school for students more than sixteen years old. The amendment will give no option in the matter of taking the drills. Failure to attend drills would be punished by expulsion. In this way the pupil would have no more right to miss drills or neglect military education than to refuse to study arithmetic.

Senator Slater said he would introduce his bill amending the law early in the session, in an effort to have it enacted and go into effect during the 1918 school year.

FEDERAL GRANTS TO STATES FOR VOCATIONAL EDUCATION

NEW YORK leads the list of states receiving federal funds for vocational education for the year 1917–18 under the Smith-Hughes Act, with a total of $154,210, according to the first annual report of the Federal Board for Vocational Education. Pennsylvania is second with $127,312; Illinois third, with $93,722; Ohio fourth, with $78,815; and Texas fifth, with $62,325. The total of the grants to all the states, as defined by law for the current fiscal year, in round numbers, is $1,655,000.

These grants are allotted on the basis of total urban and rural population, as shown by the census of 1910, and the money is paid to the state authorities after approval of the plans submitted by the state board for vocational education to the Federal Board for Vocational Education.

To date all but 1 of the 48 states have accepted the provisions of the act, and over 22 have submitted plans which have been approved. State by state the federal grants for vocational education for 1917–18 are as follows:

Maine, $15,000; New Hampshire, $15,000; Vermont, $15,000; Massachusetts, $60,316.96; Rhode Island, $16,202.71; Connecticut, $22,902.76; New York, $154,210.39; New Jersey, $42,773.58; Pennsylvania, $127,312.10; Delaware, $15,000; Maryland, $21,304.56; Virginia, $32,942; North Carolina, $36,164.85; South Carolina, $26,344.08; Georgia, $41,581.59; Florida, $15,405.79; Tennessee, $34,802.10; Alabama, $34,575.42; Mississippi, $30,912.95; Arkansas, $27,488.96; Louisiana, $26,659.16; Texas, $62,325.20; West Virginia, $21,722.27; Ohio, $78,815.42; Kentucky, $36,634.04; Michigan, $46,048.41; Indiana, $44,034.97; Wisconsin, $38,078.05; Illinois, $93,772.25; Minnesota, $33,793.59; Iowa, $35,829.39; Missouri, $53,701.27; North Dakota, $15,205.99; South Dakota, $15,139.07; Nebraska, $20,434.70; Kansas, $27,193.28; Oklahoma, $27,587.95; Montana, $15,000; Wyoming, $15,000; Colorado, $15,000; Idaho, $15,000; Utah, $15,000; Arizona, $15,000; Nevada, $15,000; Washington, $18,825.02; Oregon, $15,000; California, $39,545.89.

EDUCATIONAL NOTES AND NEWS

PRESIDENT WILSON has written to the secretary of the National Education Association that he sees no reason why the association's annual meeting in Pittsburgh, June 30 to July 6 next should be interfered with. He writes:

> My Dear Mr. Crabtree: You are quite right. It is my decided opinion that you should do everything in your power to promote the interest in the work of the schools at this time especially, perhaps, and I see no reason why the annual session of the National Education Association should be interfered with in any way.

THE REV. JAMES E. GREGG, of Pittsfield, Mass., has been elected principal of Hampton Institute, Hampton, Va., to fill the vacancy created by the death of the late Dr. Hollis B. Frissell. Mr. Gregg took his degree of A.B. at Harvard in 1897 and the degree of A.M. four years later. For three years he was a teacher of St. George's School, Newport, R. I., then pastor of churches in Pittsfield and Lowell and in 1912 was recalled to Pittsfield as pastor of the Congregational Church,

where for five years he has been active in the civic and religious life of that community.

DR. GEORGE EDWARD MYERS, supervisor of continuation classes in New York City, has been appointed professor of industrial education in the University of Michigan.

DR. VIRGIL PRETTYMAN, for twenty-five years headmaster of the Horace Mann School, was elected president of the Association of Colleges and Preparatory Schools of the Middle States and Maryland, at the thirty-first annual convention of the association, held recently in Poughkeepsie, N. Y.

DEVELOPMENT of a national program for vocational schools and classes for selected men of the National Army was discussed in Washington on December 18, at a conference of representatives of state boards for vocational education called by Director C. A. Prosser, of the Federal Board for Vocational Education.

VOLUNTEERING their services to the Y. M. C. A. War Council for work in the military camps, Professor John Erskine, of the English department, and Assistant Professor Lewis P. Siceloff, of the mathematics department, of Columbia University, will shortly embark for France.

PROFESSOR S. H. BUSH, head of the department of Romance languages at the State University of Iowa, is soon to leave for the west front to do educational work among the soldiers for the Young Men's Christian Association.

AT the University of Minnesota, the following leaves of absence have been approved: W. W. Cumberland, department of economics, for scientific investigation of economic conditions in Mexico; Dr. J. Frank Corbett, for purposes of study for war service; Dr. A. R. Hall, to engage in military service in Great Britain; Dr. A. H. Beard, on special military service; Dr. W. E. Grempler, to engage in war service, and Dr. John H. Gray, for continuing in the service of the government with the understanding that the absence will not jeopardize the tenure of his professorship at the university.

GILBERT N. LEWIS, professor of physical chemistry and dean of the college of chemistry in the University of California, has been granted leave of absence for the half year beginning January 1, 1918, to serve as major in the Ordnance Department of the U. S. Army. He is to go at once to France. A number of additional members of the University of California faculty have entered army service, including Joel H. Hildebrand, associate professor of chemistry, now a captain in the Ordnance Department; Dr. A. L. Fisher, assistant in orthopedic surgery, now a captain in the U. S. Medical Reserve, attached to Base Hospital No. 30, and W. F. Hamilton, A. R. Kellogg, and J. B. Rogers of the department of zoology, now in the Forestry Reserves.

GEORGE E. DICKIE, instructor in military science and tactics, has left the University of California to serve as Pacific Coast representative of the War Department and Navy Department Commission on Training Camp Activities.

THE board of trustees of Barnard College, Columbia University, have elected the following officers for 1918 at a recent meeting: Chairman, John G. Milburn; Vice-Chairman, Mrs. A. A. Anderson; Clerk, Frederic B. Jennings; Treasurer, George A. Plimpton. A resolution was adopted expressing appreciation of the services of Dr. Silas B. Brownell, who had been chairman of the board since 1904, and who was, on account of his health, obliged to decline re-election.

PROFESSOR FREDERICK STARR, of the department of sociology and anthropology at the University of Chicago, who has been in the Orient for the past year on leave of absence, will renew his work at the university with the winter quarter, giving courses in prehistoric archeology and general anthropology. Professor Starr has been conducting special anthropological investigations in Korea and has published a book of some five hundred pages in Japanese.

THE Romanes lecture at Oxford University, which has been in abeyance for the present year, will, it is hoped, be delivered in 1918, by

Mr. Asquith, lately Premier and honorary fellow of Balliol College.

THE name of Count von Bernstorff, formerly German Ambassador to the United States, has been stricken from the list of those who have received honorary degrees from the University of Pittsburgh. The honorary degree, doctor of laws, was conferred upon Count Bernstorff at the celebration of Charter Day of the university in February, 1912. The names of six other Germans who have received honorary degrees were ordered stricken from the rolls by the board of trustees of the university at its winter meeting.

WITHIN a few months the college life of New York University at University Heights will be enriched by the organization of a Faculty Club. West Hall has been set aside for such a club. The equipment for the club comes as a gift in appreciation on the part of Lewis G. Blunt, 1902, supported by the entire membership of his class, for the work of Dr. John J. Stevenson, 1863, who was for fifty years teacher in the university, and long head of the department of geology. West Hall will be renamed "Stevenson Hall," in his honor. Mr. Blunt has already given $12,000 for the work of reconstruction, which is in the hands of John Lowry, of the class of 1906.

AN indefinite vacation has been granted to nearly 10,000 pupils in the twenty-five public schools of Halifax, N. S., because of the widespread damage to school buildings resulting from the explosion on December 6. It is estimated that the loss on these structures exceeds $1,500,000. Except the academy, not one of the buildings escaped. The Tower Road School, which is the least damaged, could not be put in condition for occupancy in less than three weeks, even if material for repairs were available. In the North End, where the brunt of the blow fell, new buildings will be erected. The Chebucto and Alexandra schools, near the ruined area, which were partly wrecked, were converted into morgues, from which all unidentified bodies have not yet been removed. The 200 teachers deprived of regular employment volunteered in a body to assist in general relief work. G. K. Butler, supervisor of education, has stated that it is impossible to determine when sessions might be resumed.

THE University of Minnesota has arranged to offer a special war course in methods of psychological examination, the object being to train men for such work in the army. The course was adopted at the suggestion of the surgeon general's department and work will be begun at once. The course is open to men over twenty-one years of age who have had at least one full year's work in the department of psychology. The course is not limited to students in the university but is open to any resident of the state who can satisfy the department of his ability to undertake the work with a fair prospect of success. Those completing the course with credit will be recommended to the proper military authorities as qualified for appointment.

THE faculty of Rutgers College has voted to close the academic year a month earlier than usual because of war conditions, and the one hundred and fifty-second annual commencement of the college will be held on May 20. In order to make this arrangement possible, the Christmas vacation will be shortened and will extend from December 22 to December 31; there will be no Easter vacation, and all mid-year examinations will be omitted.

A SURVEY of the schools of Lawton, Oklahoma, is being made by the faculty of the school of education of the University of Oklahoma. Dr. W. A. Schmidt is directing the investigation of the organization and administration of the schools, the curriculum and types of schools, instruction and supervision, the teaching staff, methods of financing the schools and the school plant. Dr. W. W. Phelan is measuring the results of instruction through standard tests, and investigating in addition the school population, school hygiene and playgrounds.

AT the last meeting of the board of regents, the erection of a residence for the president of the Oregon Agricultural College was determined upon and plans ordered drawn. The

residence will be a substantial modern home, conveniently situated on the campus.

THE board of regents of the University of Minnesota has passed the following resolution: "That no person whose disloyalty to the government in the present crisis is established before the board of regents shall be continued upon the pay-rolls of the university, and that no citizen of an enemy country shall be appointed upon the staff without a written presentation of the facts and the express sanction of the appointment by the board of regents."

DEUTSCHES HAUS, of Columbia University, which in other years has housed the German exchange professor, and which has served as a departmental library, has been turned over for a workroom for the Columbia War Hospital.

TRUSTEES of the University of Pennsylvania will take up for consideration in the near future the question of whether it is advisable to continue the law school courses during the war, owing to the great decrease in the enrolment. At the present time the school has only 57 students in all its classes, as compared to an enrolment of 207 a year ago.

ENROLMENT in all departments of the University of Pennsylvania has been reduced by two thousand below the normal of 9,000. This means, roughly, an addition of $300,000 a year by the loss of tuition fees to the annual deficit, which for some years has been approximately $250,000 a year. The state appropriation generally makes up the larger share of the institution's deficit, but the last session of the legislature made no provision for war emergencies for the university, and there will not be another session until January, 1919.

THE historic house in which Noah Webster wrote part of the dictionary has been made the basis for a friendly suit which has just been brought by Yale to determine the right of Henry L. Hothkiss, executor of the estate of Mrs. Henry Trowbridge, to sell the property. The case is a civil suit dealing with the will of Mrs. Trowbridge, who, it is believed and claimed, left the property outright to her son, Cortland D. Trowbridge, who resides in the Webster homestead, which has been in the Trowbridge family for several generations. There is a question whether the will, if carried out literally, did not create a trust which would prevent the sale of the property to the university. The property is desired by the university in order that it may extend the dormitory system of the Sheffield Scientific School, in accordance with the pledges of Frederick W. Vanderbilt of New York City, a graduate of the school of the class of '76. Mr. Vanderbilt has already given two dormitories to the Sheffield Scientific School.

PENDING the erection of the new Peabody Museum, of Yale University, the collections have been transferred to various university buildings and to storage sheds constructed last spring for this purpose, while the department of geology has been moved to the old Hopkins Grammar School Building, recently purchased by the university and now called Hopkins Hall. Towards the cost of the new building for the Peabody Museum the university will have available approximately $550,000 from the building fund of the trustees and from the sum voted for the release of the land on High street heretofore reserved for the museum. It is evident that a new building suitable for the present needs and planned with some reference to future requirements can not be erected for this sum, and the university has, under the agreement with the trustees, pledged itself to set aside a total of $750,000 for the construction of this museum. To prevent immobilization of university general funds it is evident that gifts of at least $200,000 must be made.

A RECENT bulletin of the Connecticut State Department of Health gives the following advice to local health officers: "The practise of closing schools upon the outbreak of contagious disease is still followed by some health officers. This method of controlling disease is less efficient and more expensive than the method of individual examination. It is appreciated that public sentiment often demands the closing of schools and that official shortsightedness at times makes it difficult for the health officer to act as he thinks best, but the

health officer should put the facts squarely before the people and insist upon official support. For example, if a school of 100 pupils is closed for ten days because of an outbreak of diphtheria, the health officer should show that the average cost per day of educating a child is twenty-five cents and that by closing the schools, a loss of $250 would be sustained. For one fifth of this sum, sufficient assistance could be employed to examine and 'culture' every child. Those afflicted with the disease and the carriers could be excluded and the school allowed to continue its sessions. Add to this information that the closing of schools as a method of control is quite often unsuccessful, while the method as described invariably brings results. Of course it is sometimes necessary, where serious outbreaks are threatened, for the health officer to close the schools for a day or two until he can arrange for the admission of pupils under control."

THE British Board of Education has issued a circular to local education authorities for higher education asking them to cooperate with the Food Production Department in securing a substantial increase in the number of teachers capable of giving practical instruction in gardening, and also to facilitate a corresponding increase in the number of school gardens. The most effective step, it is suggested, will be the early establishment of a greatly increased number of Saturday classes for the instruction of selected teachers of secondary and elementary schools and evening classes, such as were already in existence in certain areas before the war. The centers for instruction should be so distributed, especially in county districts, as to cover as wide an area as possible, and the instruction should be of a very practical character, which the teacher-students may be in a position to begin passing on to their pupils at an early date.

IN a recent speech at Cardiff, Mr. A. L. Fisher, president of the British Board of Education, said, "that if they wished to have a great university the first step was to secure great men to teach in it. The great universities of the world had been founded round great men of genius, of inspiration, and of driving force, who could kindle the souls of their students and diffuse an enthusiasm for the high things of learning. Therefore, to establish a strong and powerful university was to get great men, and he would say that not a bad way of getting great men was to pay them well. A university staffed with five first-class professors was a stronger university than one staffed with 10 second-class professors. All the great universities of the world had built up their reputation on the teaching powers, the research work, the inspiration, and the influence of the number of great characters in each."

THE following is part of a resolution defining the proper scope of the functions of the advisory council of the University of Oregon (consisting of three deans and three other members of the faculty, elected by the faculty) recently adopted by the council and accepted by the president of the university:

> 2. That the proper scope of the council's function includes the deliberation and recommendation upon the following matters of major interest . . ., and that discussion by the council in regard thereto should always precede final decision and action by the administration and by the board of regents:
>
> . . . . . .
>
> 7. The demotion or separation from the university, forced or voluntary, of individual instructors having indefinite tenure or of instructors having definite tenure effected before the expiration of their term.

DISCUSSION AND CORRESPONDENCE

THE INADEQUACY OF ARGUMENTS AGAINST DISCIPLINARY VALUES

IN a recent paper in the *Educational Review* I have pointed out in a general way the weakness of the arguments that are usually raised against the existence and importance of disciplinary values. Professor E. C. Moore's recent paper in SCHOOL AND SOCIETY entitled, "Does the Study of Mathematics train the Mind Specifically or Universally?" seems to me to present such a striking illustration of my contention that I should like to make use of it in order to present this same point to the readers of SCHOOL AND SOCIETY.

Professor Moore consumes about four pages out of ten in discussing a few quotations from the writings of certain distinguished men of the past, from Sophocles and Plato down to more recent times, which reflect more or less on the ability of mathematicians to do certain things outside of the field of mathematics. All of this he seems to regard as very pertinent to the topic in hand, although he declares in his paper that our educational policies should not be settled by tradition. Moreover, the opinions he makes use of can not even be said to form a tradition, for it is quite easy to marshal a much more imposing list of quotations on the other side of the question. In fact, if Professor Moore really thinks this question ought to be settled by an investigation of the opinions of great men of past ages, he will find the evidence overwhelmingly against him if he makes an impartial investigation in which opinions on both sides are noted with equal care. For example, he mentions Auguste Comte as an authority on his side, but does not quote him. If he examines Comte's "Positive Philosophy" he will find among other statements to the same effect the following:

> Geometrical and mechanical phenomena are the most general, the most simple, the most abstract of all—the most irreducible to others. It follows that the study of them is an indispensable preliminary to that of all others. Therefore must mathematics hold the first place in the hierarchy of the sciences, and be the point of departure of all education, whether general or special.

Is this an opinion in favor of Professor Moore's side of the question or against it? If any one wishes to see many other statements of this nature from equally eminent men, he need only consult, for example, Professor Moritz's "Memorabilia Mathematica."

In further refutation of this part of Professor Moore's paper, we need only point out that most of the writers quoted by him were discussing the effect on the mind of a prolonged and more or less exclusive study of mathematics. Granting that they were right, their discussion would not shed light on the effect of devoting part of one's time to the study of mathematics during two or three years of the adolescent period.

It is rather amusing to see the opponents of disciplinary values falling back on the quotation of opinions to urge their claims. Not so long ago they were going to settle this matter in what they contended was a much more satisfactory way. They were going to prove their point scientifically by means of experiments on the transfer of training. But since such experiments, when carefully made, proved a decided boomerang, these same writers are now frantically seizing any material that is available in order to bolster up awhile longer the house of cards which is tumbling about their ears.

If Professor Moore really wishes to make a defensible use of opinion in this connection, let him attempt an investigation similar to that recently carried through by Professor Hancock and reported in SCHOOL AND SOCIETY.[1] It may be well to recall here briefly the part of Professor Hancock's investigation that is especially pertinent to the present discussion. A circular letter inquiring the opinion of the recipient as to the relative value of certain high-school courses was sent to a representative group of the most prominent lawyers, physicians, ministers and men of affairs throughout the country. The same letter was sent to a similar group of the most prominent Cincinnatians. In the first group 90 out of 96 recommended a course in which mathematics was required, and in the second group 96 out of 105 made the same recommendation. Here we have the opinions of leading men of to-day based on their knowledge of present needs and conditions. If educational policy is to be shaped by actualities as far as we can determine them, rather than by tradition, surely this sort of an investigation is worth infinitely more than Professor Moore's painstaking search of the writings of the past in order to find a few hard things that distinguished men have said about mathematicians.

So much for Professor Moore's use of quotations. Let us examine some of his other attempts to justify his opinion. He makes on

[1] Vol. I. (1915), p. 893.

page 488 the usual attempt to invalidate the doctrine of formal discipline by insisting that it necessarily depends on the abandoned hypotheses of the "faculty psychology." But competent psychologists, such as Professor S. S. Colvin, have clearly shown that there is no such dependence.[2]

On the same page of Professor Moore's paper we may note the usual confusion between the process of reasoning and the data on which one reasons. Any one will admit that a person who reasons well in a certain field will not therefore be able to reason in another field where he is unfamiliar with the data, but that is a far different thing from saying that the reasoning power he has developed in the first field will be of no assistance after he has become familiar with the data in the second field.

Although Professor Moore realized the futility of trying to make out a case against disciplinary values on the basis of experimental studies on the transfer of training, he apparently felt that he must say something about such studies, since we were so recently assured that they had completely overthrown the doctrine of general discipline. We can judge of the straits he is in to secure the sort of material he desires, when we find him opening his discussion by offering for the reader's consideration the now thoroughly discredited work of Mr. F. C. Lewis. This work dates back to 1905, and the conclusions of Mr. Lewis are based on a quasi-statistical discussion of certain rather fragmentary data. Since the publication of Mr. Lewis's paper, it has been pointed out twice[3] by a competent staticist that his choice of data and his manner of discussion are both indefensible from the standpoint of acceptable statistical procedure. It has been further shown by the same writer that a proper treatment of the type of data used by Mr. Lewis leads to conclusions directly opposite to his.[4]

[2] "Learning Process," p. 236.

[3] *Cf.* two papers by Professor H. L. Rietz, *University of Illinois Studies*, Vol. 3 (1908–10), p. 1; *Journal of Educational Psychology*, Vol. VII. (1916), p. 87.

[4] *L. c.*

In addition to citing the results of Mr. Lewis, Professor Moore endeavors to draw conclusions favorable to his claims from the recent experiments of Dr. H. O. Rugg at the University of Illinois. These conclusions are quite at variance with those of the investigator himself, and it is easy to see that they are based on a series of erroneous assumptions.

The basic error in Professor Moore's reasoning, which is responsible for all of his erroneous assumptions, is to be found in his belief that he can obtain very precise results by the use of data which are not themselves very precise. Thus, from experimental facts which can at best only show a strong tendency in a certain direction, he expects to obtain a precise measure of that tendency. This general erroneous conception of what constitutes a proper scientific procedure leads to the specific erroneous assumptions referred to above. These are: (1) that in spite of the infinite variety in human ability a certain course of training should have exactly the same disciplinary effect on each person taking it; (2) that every student taking the course in descriptive geometry, referred to in Dr. Rugg's monograph, did sufficiently conscientious work to show the full disciplinary effect; (3) that none of those students not taking the course would show any improvement in the second test, due to their having taken the first test, or would engage in any mental activity in the interval between the tests, that might have some of the same disciplinary effect as the course.

After his discussion of Dr. Rugg's experiments, Professor Moore declares that on the basis of all the experimental results thus far obtained, the evidence of transfer is inconclusive and the amount is slight. This statement may be most expeditiously disposed of by pointing out that it is contrary to the facts of the case. In Dr. Coover's recent monograph on "Formal Discipline,"[5] in which an exhaustive review of the experimental results is made, we find in the summary of these results the statement:

[5] Psychological Monographs, Vol. XX., No. 3 (1916).

Under the experimental conditions, the "general" effect usually ranged in amount from one fourth to three fourths of the gain made in the specific practise.

Near the end of his paper Professor Moore resorts to the time-honored device of the debater who can not prove his case. He insists that the burden of proof is on the other side. As a matter of fact the burden of proof would seem to be rather on those who take a stand directly contrary to the consensus of intelligent public opinion, as indicated by the results of Professor Hancock's investigation. But be that as it may, the weight of evidence is decidedly with the advocates of disciplinary values, and it is up to their opponents to furnish some weight on the other side.

Professor Moore closes with a quotation from Professor Spearman to the effect that the doctrine of formal discipline has been proved false. It is well to mention that this statement of Professor Spearman refers to certain conclusions of Dr. W. G. Sleight, based on a series of experiments made by himself. That these conclusions do not at all follow from Dr. Sleight's experimental results, if we use a little common sense in interpreting these results, has been pointed out by Dr. Coover in his monograph and by myself in the article in the *Educational Review*, to which sources the reader is referred. Attempting to found a theory of education on Dr. Sleight's conclusions is about as rational as choosing a quicksand on which to build a fifty-story steel structure.

Charles N. Moore

University of Cincinnati

QUOTATIONS

SCIENCE IN EXAMINATIONS

The earlier part of the new report of the Committee on the Neglect of Science (in education and examination) makes the reader wonder whether the lion has not lain down with the lamb. To have Sir Ray Lankester, the chairman of the committee, blessing a system of examination favored by the civil service commissioners seems to argue the millennium at hand. It only means, however, that even he has learned to be thankful for so small a mercy as a facultative breach in the defenses, hoping that presently it will become practicable. A conference held in May, 1916, under the chairmanship of Lord Rayleigh, O.M., chancellor of the University of Cambridge, on the neglect of science by the legislative and administrative authorities of the country and by the people generally, unanimously adopted certain resolutions, and the committee undertook to submit the substance of them to the government. This was done in interviews with Lord Crewe and the civil service commissioner (Mr. Stanley Leathes). The definite practical purpose was to obtain such alteration in the examinations for first-class appointments in the home and Indian civil service as would lead to an increased attention to the study of the natural sciences in public schools and universities. The government thereupon appointed two committees, one under the chairmanship of Sir J. J. Thomson, president of the Royal Society, to report on science in the educational system of Great Britain, and the other, under the chairmanship of Mr. Stanley Leathes, to report on the scheme of examination for Class I. of the civil service. Sir J. J. Thomson's committee advised Mr. Leathes's committee that it was indispensable that a course of science extending over several years should form a serious part of every candidate's previous education, feeling strongly that if the men with higher scientific qualities, who will undoubtedly be needed in the civil services, are to be secured at a comparatively early age by examination, then candidates offering science only (without mathematics) should in future be placed on complete equality with other candidates. The report of Mr. Leathes's committee advised that while such subjects as languages, literature, and history are on the whole, and for most young men, the best preparation for the higher civil service, reform is necessary, and should be considered at once. It made the important recommendation that the examination should be divided into two sections—compulsory and optional. For the first section a maximum of 800 marks would be allowed, it would include an essay, English, questions on contemporary

subjects, and others on general principles, methods, and applications of science, together with Latin, and one modern language not taken in the second section. Latin, however, might be dropped by those who took two modern languages among the optional subjects; these are fifty-two in number, and in them marks ranging from 100 to 400 would be obtainable, with a possible total of 1,000, so that the possible total for both sections is 1,800. Among the optional subjects are Latin, Greek, French, German, Spanish, Russian, and English, each receiving 200 marks, with 200 more for the history and literature of the same nationalities. Other optional subjects are modern history, economics, politics, law, and philosophy, from which 200 to 100 marks may be earned; mathematics receives 400. A candidate might try for his possible 1,000 marks by selection from the above list, or he might take five branches of natural science, with the choice of chemistry, physics, botany, zoology, physiology, anthropology, or geography; or he might take fewer natural science subjects and fill up from the list of other optional subjects. Sir Ray Lankester says that the committee's report puts the natural sciences on a really fair footing as compared with classics or any literary study, though the fair working of the new scheme must depend upon the action of examiners, who have it in their power to make it easy or difficult to secure marks in any given subject. Mr. Leathes's committee has stopped short at securing equal opportunity for all subjects, so that the main purpose of the resolutions of the conference is not accomplished. Schools and the old universities are to a large extent in the hands of teachers of classics, and in the great public schools the head masters are, without exception, "classics," and the importance of the natural sciences as an essential and dominant part of sound education is ignored. Sir Ray Lankester's conclusion is that Mr. Leathes's committee, "instead of rescuing education from the professional vested interests of the classical schoolmasters, hands back the victim, after many professions of goodwill, to the tender mercies of those who are banded together to starve, torture, and discredit her, and remorselessly to maintain the domination and the pecuniary allurements of the 'classical system.'"—*The British Medical Journal.*

BOOKS AND LITERATURE

NEW BOOKS IN THE FIELD OF ENGLISH

THE tercentenary of Shakespeare provided the fitting occasion for a notable volume on the sonnets. This is edited by Professor Raymond McDonald Alden, of the Leland Stanford Junior University, and is published by Houghton Mifflin Company as a number of the well-known Variorum Series. Professor Alden has sought to bring together in one place everything of value that has been written about the short poems of the great dramatist. He has, unlike his predecessors, not attempted to suggest a new hypothesis, but has contented himself with placing side by side the various theories which have been promulgated. The apparatus for study included in this volume is all that could possibly be wished by the most painstaking investigator. This includes textual notes, a section of quotations of general criticism, sources and analogies and an annotated bibliography.

Professor Walter C. Bronson, of Brown University, adds to his "Anthology of American Poems" a companion volume called "American Prose," published by the University of Chicago Press. He includes very full quotations from the writers of the seventeenth and eighteenth centuries in order that college students may have access to a sufficient amount of material to illustrate those periods. In the case of the nineteenth-century writers he was, of necessity, more limited. It is a matter of surprise to the present reviewer, however, that there are no quotations from either Sidney Lanier or Walt Whitman.

The interest in Boswell's "Life of Johnson" apparently continues. Selections of this work have been very attractively brought together by Mr. Max J. Herzberg, of the Central High School in Newark, New Jersey, and published, with illustrations, by D. C. Heath and Company in their English Classics Series. The editor has exercised commendable

restraint in the matter of notes. Students will profit by the excellent list of suggested reading included and also by the map of London in 1780.

A unique idea with regard to composition books for high schools has been carried out by Principal Edwin L. Miller, of the Northwestern High School in Detroit, Michigan. He has prepared one volume for each of the four years, emphasizing in each, one or more aspects of the subject. Thus emphasis is placed in books one and two on description and narration, in book three on exposition, and in book four on argumentation. Similarly, stress is laid in book one on letter writing, in book two on journalism, in book three on literary effect, and in book four on civic aspects of composition. The suggestions for compositions are interspersed with poems for memorizing and numerous illustrations from English literature. Houghton Mifflin Company are the publishers. Equally unhackneyed is "Working Composition," by John B. Opdycke, a teacher in the high schools of New York City. All of the expressional activity in his book is made to center about the idea of work. It must not be supposed, however, that for this reason the book is commonplace. There are some excellent illustrations and also poems. Teachers will find the examples of business forms particularly useful. The book is published by the Macmillan Company.

To the list of manuals intended to give training in reading aloud is added Professor Lee Emerson Bassett's "Handbook of Oral Reading," published by Houghton Mifflin Company. The compiler is associate professor of English in Leland Stanford Junior University and has gathered his material in the course of his college work. His theory and illustrations are grouped under the headings of clearness of meaning, impressiveness and ease and correctness. A section of suggestions to teachers completes the work.

Most of the older generation will recall their contact with Swinton's "Word Analysis." A somewhat more attractive volume with a similar purpose has been compiled by Mr. B. K. Benson and published by D. C. Heath and Company. Doubtless teachers would find it a useful reference book to which to send their pupils in connection with the actual work in composition and reading. The subject of reading itself is treated in "Daily Lesson Plans," a teachers' manual for the second school year, by Walter L. Hervey and Melvin Hix. This is intended to accompany the Horace Mann Readers, published by Longmans, Green and Company. A more thoroughgoing treatise in the same field is "Reading in the Primary Grades," by Frances Jenkins, of the University of Cincinnati. This, while planned to guide the teacher in the use of the Riverside Readers published by Houghton Mifflin Company, is in itself an excellent analysis of the various problems of teaching primary reading. The author is especially competent in applying recent investigations in psychology to the teaching of reading. A third manual of this type is called "A method of teaching primary reading." This is written by Lida Brown McMurry, of the Northern Illinois State Normal School, and is published by the Macmillan Company. Mrs. McMurry's attempt has been to bring together a set of games for the teaching of phonics. One wonders whether these are likely to be as vital in the hands of another as in the hands of the inventor. Uniform with the volume just described is "A handbook of practise for teachers," by Dr. Charles McMurry, now of the Peabody College for Teachers in Nashville, Tennessee. This small volume is packed with practical suggestions drawn from the author's long experience as director of practise work. Mr. M. A. Leiper, of the Western Kentucky State Normal School, writes of "Language work in elementary schools." He is particularly interested in the work of the country schools and has collected much material available to children in the country. The work is handsomely illustrated and is fitted out with references, lists of stories and poems, and an appendix containing lyrics for memorizing.

The recent editors of school reading books are showing a disposition to lay stress upon content selected for its ethical or socializing value. In this class may be placed "Every-

day classics" by Professor Franklin T. Baker and Ashley H. Thorndike, of Columbia University. Volumes III., IV., V. and VI. for the corresponding grades are at hand. The material in these has been selected with reference to its standing as classic literature. The editors contend that there is a body of good literature known to all people who know books and simple enough to be understood by children. This, they think, should be made available as a part of the common heritage of the race. They would, therefore, oppose the tendency of the time to push aside old and approved things for the sake of something new and different. They have brought together a very valuable body of stories and poetry, printed in good type, charmingly illustrated, and accompanied with questions for study. The publishers are the Macmillan Company. Professor E. Hershey Sneath and Henry Hallam Tweedy, of Yale, and Professor George Hodges, of the Episcopal Theological School in Cambridge, have aimed in their King's Highway Series at ethical training. The two volumes at hand, called, respectively, "The way of the green pastures" and "The way of the gate," are filled with poems and stories, with occasional quotations from the Bible, selected to teach definite principles of conduct. It is not intended, however, that either book shall teach a science of ethics or system of theology. The authors aim rather at the inculcation of ideals. The indirect or story method was adopted in preference to a more formal didactic method as the result of information obtained from a thousand teachers in the elementary schools, nearly 95 per cent. of whom opposed the formal teaching of ethics to children.

J. F. H.

DROP THE CATCH-WORDS

IN discussing "The Science Element in Education" before the Central Association of Science and Mathematics Teachers at Columbus, Ohio, November 30, L. H. Bailey paid his compliments to some of the current discussions as to the supposed differences in educational value between the old-line and the new-line kinds of subjects. It is time to desist in placing these arbitrary divisions before pupils, as if there are essentially two camps in education, with subject-matter of superior and inferior order. Education is one, not twain.

We have become so addicted to the use of certain phrases and catch-words that we accept them as expressing real situations and differences. He thought it was time to drop forever all such contrasts and antagonisms as "the humanities" and "the sciences," "the arts" and "the sciences," and the like. As for "culture," it really means nothing in discussion of educational values, and the war has shown us how dangerous it may be (in another language-form) as a pass-word; in fact, we should now be ashamed to use the word. He would stop censuring "traditional" education:

> Even tradition has educational value, for it is part of the natural history of the human race. In this modern world of intense activity, I have no fear of what we call tradition in education, although some writers seem to make it a bogey-man. We might profit greatly by more tradition. It is a vast misfortune to separate ourselves so completely from the human past. We have forgotten our grandfathers, and soon we shall forget our fathers.

He declared that he knows of no humanities that are not science, and no science that is not humanities. The one spirit of quest for truth is in both. Any subject is only what human beings make it. An assumption of educational superiority in the one or the other really makes for inefficiency in the teaching of it, and it is probably not true in itself. We should cease talking about the discipline" of certain subjects. The discipline lies in the organization of the subject, the atmosphere of the instruction, the preparation and power and purpose of the teacher. Neither is science in itself more useful as an educational means than other subjects.

> Old subjects may be more worth while in the school-room than the new ones because they carry with them more accumulated human interest; they may also be better organized as educational agen-

cies: I should want them taught as live subjects, however, not as dead ones.

Nor is there the sharp educational distinction, as many persons assume, between the "applied" and the "pure" sciences.

Science is science, whether devoted to the uses of life or whether it rests on its own reward; science does not need justification; no knowledge needs justification. But no person should ever attempt to apply scientific investigation until he understands and values science for its truth in the abstract.

We are misled by our phrases.

EDUCATIONAL RESEARCH AND STATISTICS

EVALUATION OF MERIT IN HIGH-SCHOOL TEACHERS

HIGH-SCHOOL inspection in Ohio is striking at complacency with good effect. It is not a wanton belligerency that has stirred so perceptibly the secondary division of the educational system of the state, but a vigorous consistent policy of upbuilding. The chief objective from the beginning of the reform, following the enactment of the high-school inspection laws of 1914, has been the strengthening of classroom teaching. Acceptable conditions as regards the organization and equipment of schools are insisted upon, to be sure; but the teaching is made the paramount issue. The campaign for better teaching standards is giving heart to those teachers of energy and vision who approach their work studying it, and who continue to be assiduous students of the teaching art as the years come and go, while it is exciting alarm in those of the opposite sort. It has already come to be quite well understood among high-school teachers that unpreparedness and lethargy mean, in due time, elimination.

Inspection of schools, if it is attended to at all thoughtfully, would presuppose a somewhat analytical observation of teachers at work. The conviction has formed itself in the mind of the writer, as experience in the study of teachers has accumulated, that much in the way of tangible results has been lost in the past from want of the recording of pertinent data as the work proceeded. The present report on schools and teachers visited during the first five months of the academic year of 1916–17 is submitted as showing, (*a*) gains in the way of personal insight into the general educational situation in the geographic units covered distinctly larger than would have been possible without a systematic means of record; (*b*) increased possibility, through the method employed in this study, of display and dissemination of facts tending to suggest improvement; (*c*) the practicability of arraying groups of teachers in comparison as regards efficiency; (*d*) some degree of success in approximating the teacher's professional worth; (*e*) the possibility of establishing scientifically founded standards of attainment in teachers by widespread use of a system of measurement.

THE SCORE-CARD

At the outset of the period of work referred to above a score-card was made by the writer and a colleague, Mr. George R. Twiss, with the aid of the rest of the high-school inspectors and other employees in the State Department of Public Instruction. The items to be considered in the rating of teachers were laid out as in the form given below, no weights being given. Each of ten persons in the department was then asked to distribute 1,000 points among the five main heads in the form, —Personality, Scholarship, Method, Pupil Reaction, and Room Conditions, assignments of points being made in proportion to the relative weight each item should have in the rating of a teacher. The median of the ten assignments given to each item was found, and the nearest ten to this number were taken as the weight for that item. The weight attributed to each of the subheads was obtained by distributing the points for each group in the same manner as for the whole, excepting that the nearest five to the median was taken each time as the weight. The combined judgment of ten persons, all of them persons whose judgments were well worth considering in such a matter, was thus secured. This number was very much too small, it must be admitted; and yet it may be

considered as affording a system of weights reasonably satisfactory at least for experimental purposes.

INSPECTOR'S SCORE CARD

..... , ...
Name School Location

.....
Subjects and Grades

Date ..... Time of Inspection; Beginning..... Leaving .....

I. PERSONALITY:	(210)	III. METHOD:	(210)
1. Appearance	(25).....	1. Independence of text book..	(20).....
2. Health, animation	(35).....	2. Selection and organization of subject matter	(40).....
3. Poise	(30).....	3. Skill in questioning	(30).....
4. Human-nature attitude	(35).....	4. Facility in illustration	(25).....
5. Open-mindedness	(30).....	5. Group cooperation	(30).....
6. Leadership	(55).....	6. Conclusiveness	(30).....
II. SCHOLARSHIP:	(220)	7. Assignment	(35).....
1. General	(55).....	IV. PUPIL REACTION:	(250)
2. Special	(50).....	1. Organization of subject matter	(30).....
3. Pedagogical	(35).....	2. Judgment of values	(35).....
4. Command of English	(40).....	3. Interpretations	(30).....
5. Scholastic ideals	(40).....	4. Using knowledge	(35).....
V. ROOM CONDITIONS:	(110)	5. Initiative	(55).....
1. Order and neatness	(35).....	6. Tastes and appreciations	(30).....
2. Attractiveness	(30).....	7. Relevant questions	(35).....
3. Controllable hygienic factors	(45).....	TOTAL SCORE ..... (Perfect Score 1000)	

A score-card to be used in relatively short-time visitation of teachers must necessarily be simplified as far as would seem at all compatible with a sufficiency of data upon which to base an intelligent judgment. Simplification was an objective held constantly in mind in making the card used in this study. Trial of it has shown slight further possibilities in this direction, as, for instance, through elimination of the partial duplication between 1 and 2 under Method. Other imperfections came to view through use notably the inapplicability of main heading V, Room Conditions, and the want of some scheme of allowance for counteracting factors, such as, poor handling of classes or of the school in previous years, unfavorable social environment, or deleterious affective conditions of which the teacher could not be expected to be in control.

Extended explanation of the meaning of the various subheadings employed does not seem to be necessary, although in certain instances a satisfactory degree of clarity has not been attained. The subhead, "*group cooperation,*" under Method, for example, means more than cooperation. It is intended to stand for intimacy of mental contact throughout the group, as the teaching goes on, as well as outward cooperation of its members. The term "rapport" would perhaps be more exact. "Conclusiveness," again, is intended to signify what we mean when we ask whether the work "gets anywhere" or whether it is "rounded out." The group of considerations under the head of "Pupil Reaction" will be readily interpreted, if the fact is kept in mind that they are to be considered as attributes always *of the work of pupils.*

Although no apologies need be offered for the card in the main, the section "Room Conditions" was found to be of very little value. Teachers change so much from room to room as to render it usually quite impracticable to fix responsibility for conditions

coming under this head. Care for physical conditions bear such relationship to effective class-room work as to merit consideration, but a better way of taking it into account will have to be found than that provided in this section of the rating scheme here under consideration.

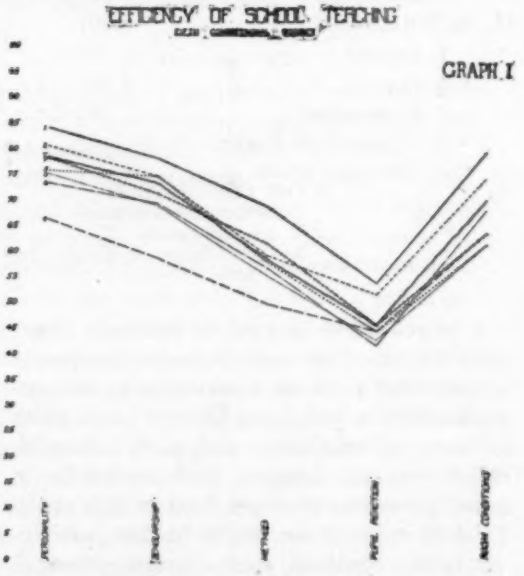
THE USE OF THE SCORE-CARD

In the visitation of teachers care was exercised to make the presence of the inspector a factor of the least possible disturbance. An entire class period (forty-five minutes), or two half periods, was spent with each teacher. Although this time was confessedly short enough, yet it was found sufficient to enable one to inform himself in a fairly satisfactory way on all of the points embraced in the card, excepting the last group. In making a rating on scholarship the necessary information, beyond that coming from the teacher's work, was gained by inquiry of the teacher and others, or by use of a supplementary blank form covering in detail both training and experience.

Separate tabulations were made of the scores under all of the twenty-eight subheads; but it seems impracticable to present here an account going so far into detail as to discuss each one. It is not essential either that this be done, inasmuch as it is designed here to give only a general administrative view of the applicability of the scheme. From the standpoint of close supervision of teaching, however, or of the study of class-room technique, it becomes indeed worth while to follow out the results in the utmost detail. This is particularly true of such attributes among those listed, as, "Skill in questioning," "Assignment," "Initiative," and "Relevant questions."

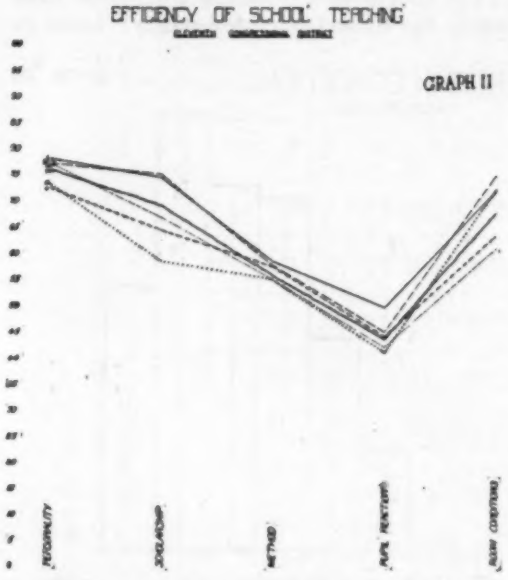
The teacher was not apprised of the fact that his work was being scored on, even at the end of the period of visitation, excepting in rare instances. The general attitude which teachers are coming to have toward criticism and measurement of their work, however, is such as to invite entirely frank and free use of any reasonable measuring scheme. This is coming to pass in spite of the loud protestations to the contrary of the champions of a decadent method of professional appraisal, the chief asset of whom is the oil of flattery. For the sake of avoiding needless annoyance, however, the score-card was kept out of sight during the visit, the appraisal being made in private afterward as soon as practicable.

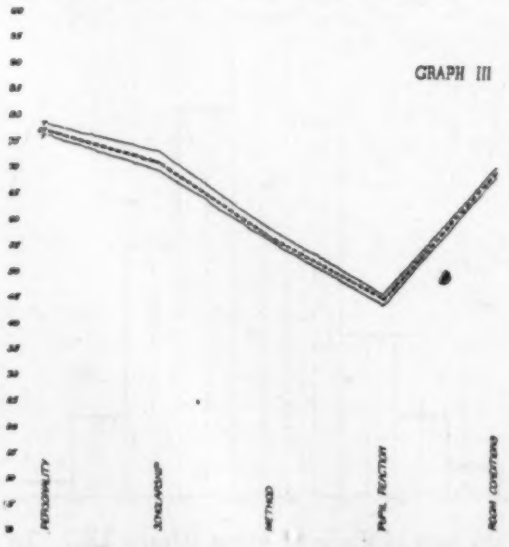
No particular order was observed in the visitation of schools in a given county, or of counties, all being taken casually in the course of the work of nspection. Definite account should be taken of the fact that about one third of the schools visited had not been subjected to the stimulus of inspection for the space of three years or more; and hence the showing in practically every county visited is probably a little lower than that which a complete survey of all schools would produce. It should be noted further that no city schools are included in the tabulations of results. The data considered are only those of rural and village high schools. In at least three counties, moreover, the number of teachers rated, as may be seen by reference to the table of medians and per cents., is too small to justify acceptance of the results in these cases as in any considerable degree representative of general conditions.



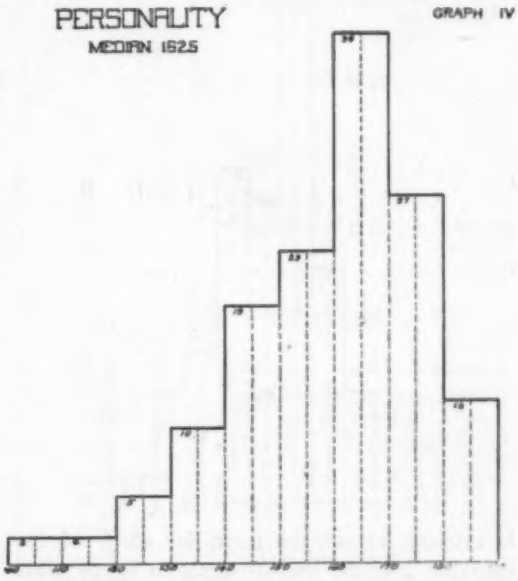
INDIVIDUAL AND GROUP RATINGS

The ratings of individual teachers, as indicated by total scores, fall between the limits of 440 and 810 points out of a possible thousand. The main significance of this fact is

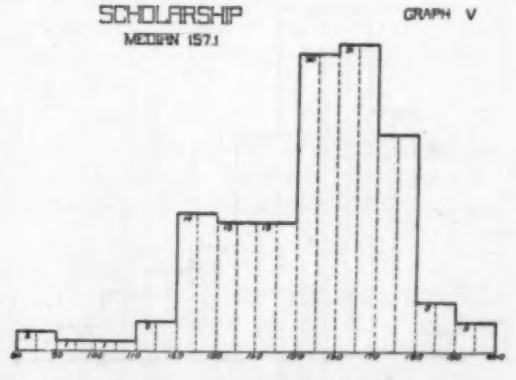




that it indicates a lower standard of professional worth in the teachers surveyed than would seem desirable. This fact is brought more vividly to view in Graphs I. to III. representing the median scores, converted into per cents., made by the teachers in the twelve counties for which data were taken. Table I. gives the number of teachers considered in each county, the median scores, and the per cent. equivalents. It will be noted that the



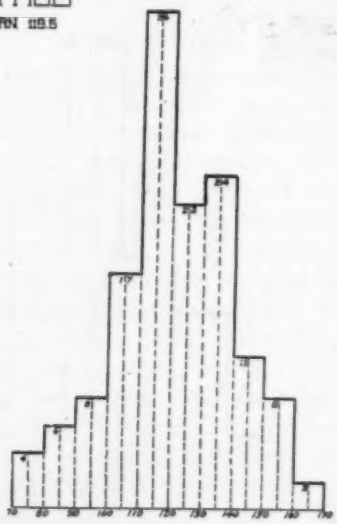
territory covered lies in two groups of contiguous counties making up the fifth and eleventh congressional districts of Ohio. For obvious reasons, the counties are referred to by number instead of by name.



It is not creditable that the merit curve rises only slightly above eighty per cent. in any instance. Positive chagrin ought to be

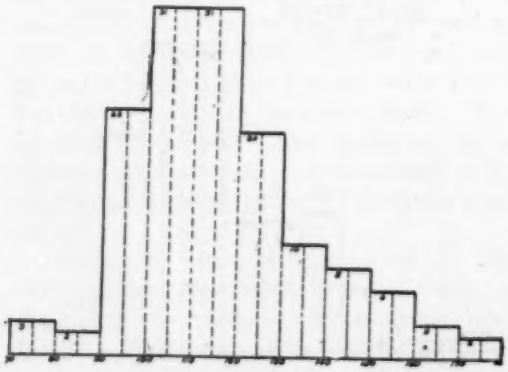
excited when the realization comes home that considerably less than fifty per cent. is generally merited, too, in very important aspects of professional worth. The curve is plainly not high enough on the scale, and it is very much too far from straight. The occasion

METHOD GRAPH VI
MEDIAN 115.5



is evident, to say the least, for study of the teaching art; for improvement in its peculiar skills; and particularly for learning how to wrest a larger measure of the first fruits of victory in the form of pupil activity in class

PUPIL REACTION GRAPH VII
MEDIAN 112.9

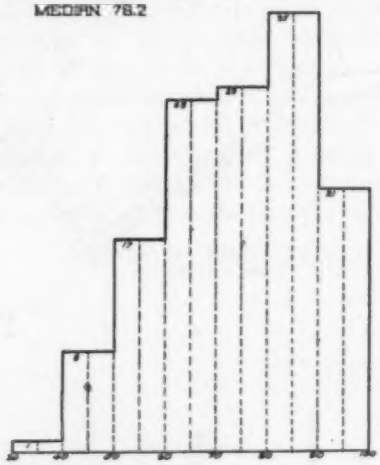


exercises. Five teachers were found scoring in a fairly satisfactory way in pupil activity; these would seem to point to the possibility of a more satisfactory showing when teachers generally come to recognize what a really successful kind of teaching means.

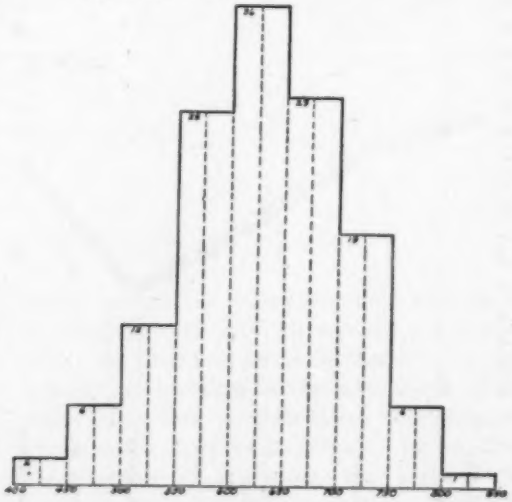
DISTRIBUTION OF SCORES

The distribution of scores approaches most nearly the theoretical "probability" curve in

ROOM CONDITIONS GRAPH VIII
MEDIAN 78.2



TOTAL SCORES GRAPH IX
MEDIAN 627.7



the case of the total scores (Graph IX.). Inasmuch as this set of scores represents a comprehensive group of factors rather than a single trait or type of training, it is perhaps

TABLE I

Medians and Per Cents.

County Numbers			Fifth Congressional District								Eleventh Congressional District						Both Districts
			1	2	3	4	5	6	7	District	1	2	3	4	5	District	
Number of Teachers			16	17	15	4	9	8	4	73	13	12	15	21	5	66	139
Personality	Perfect score 210	Medians	177.5	170	158.7	140	160	155	165	165.4	165	163.3	163.3	153.3	155	160.8	162.5
		Per cents.	84.5	81	75.6	66.7	76.2	73.8	78.6	78.8	78.6	77.8	77.8	73	73.8	76.6	77.4
Scholarship	220	Medians	172.5	165	152.5	130	165	153.3	157.5	161.7	165	148.7	166	143.3	130	153.5	157.1
		Per cents.	78.4	75	69.3	59.1	75	69.7	71.6	73.5	75	67.6	75.5	65.1	59.1	69.8	71.4
Method	210	Medians	145	125	116.7	105	122.5	120	130	123	125	116.7	122.5	122	116.7	118.3	119.5
		Per cents.	69	59.5	55.6	50	58.3	57.1	61.9	58.6	59	55.6	58.3	58.1	55.6	56.3	56.9
Pupil reaction	250	Medians	135	130	107.5	111.7	111.7	105	115	115	125	106.2	113.3	111.2	103.3	110	112.9
		Per cents.	54	52	43	44.7	44.7	42	46	46	50	42.5	45.3	44.5	41.3	44	45.1
Room conditions	210	Medians	87.5	87.1	67.5	70	67.5	75	70	77	80	67.5	82.5	70	80	75	76.2
		Per cents.	79.5	74.3	61.3	63.7	61.3	68.2	63.6	70	72.7	61.3	75	63.6	72.7	68.2	69.3

TABLE II

Distribution of Scores

Personality		Scholarship		Method		Pupil-Reaction		Room-Conditions.		Totals	
Scores	No. of Teachers	Scores	No. of Teachers	Scores	No. of Teachers	Scores	No. of Teachers	Scores	No. of Teachers	Scores	No. of Teachers
101 to 110	2	81 to 90	2	71 to 80	4	– to 80	3	31 to 40	1	– to 450	2
111 to 120	2	91 to 100	1	81 to 90	6	81 to 90	2	41 to 50	8	451 to 500	6
121 to 130	5	101 to 110	1	91 to 100	8	91 to 100	22	51 to 60	17	501 to 550	12
131 to 140	10	111 to 120	3	101 to 110	17	101 to 110	31	61 to 70	28	551 to 600	28
141 to 150	19	121 to 130	14	111 to 120	36	111 to 120	31	71 to 80	29	601 to 650	36
151 to 160	23	131 to 140	13	121 to 130	22	121 to 130	20	81 to 90	35	651 to 700	29
161 to 170	39	141 to 150	13	131 to 140	24	131 to 140	10	91 to 100	21	701 to 750	18
171 to 180	27	151 to 160	30	141 to 150	11	141 to 150	8	101 to 110		751 to 800	6
181 to 190	12	161 to 170	31	151 to 160	8	151 to 160	6			801 to 850	1
		171 to 180	22	161 to 170	2	161 to 170	3				
		181 to 190	5			171 to 180	2				
		191 to 200	3								

the only one which may be expected to approach closely a normal distribution. The personality curve (Graph IV.) one should find skewed toward the higher scores rather than the lower, since personality traits are the most obvious points upon which selection of teachers is determined. The same situation in more moderate degree appearing in the case of scholarship (Graph V.) finds somewhat the same explanation. In the cases of Method and Pupil reaction the curves tend toward the other side of the scale. The sets of values appearing under these heads are clearly not at all commonly possessed by teachers in satisfactory measure. The curve for the latter of the two groups is strikingly aberrant.

CORRELATIONS

More than a hint of the low degree of correlation between the major factors of professional worth is gathered from the merit curves just considered. These show a very wide variance in the cases of Pupil Reaction and Method from the standard attained in Personality and Scholarship. The evidence of this lack of correlation is, we contend, scientifically valid; and the general condition is only in a measure more striking than the numerous individual instances wherein scholarship is all that could be desired and teaching skill is microscopically small. As between Method and Pupil Reaction, the only immediate evidence of results, there is not the degree of correlation that one would expect. The condition here points to the need of a dynamic vitalized procedure as being possibly more important than one that is correct from the standpoint of the formalist in technique. Sufficient data were not obtained to form the basis of a judgment with regard to the effects of *professional training* in promoting real effectiveness in teaching. The writer's observations on this point tend to create the presumption, however, that the teachers coming out of teacher-training institutions are not showing such superiority in exciting pupil response as we have a right to expect of them.

Comparison of efficiency ratings of teachers with the salaries which they receive shows some degree of positive correlation. For the Fifth District the coefficient is .41 and for the Eleventh .85. These results are reached by comparing the average of the salaries of the teachers studied county by county, with the median of total scores. The figures in round numbers are set forth in the following table:

TABLE III

Scores and Salaries

Fifth District			Eleventh District		
County No.	Median	Ave. Sal.	County No.	Median	Ave. Sal.
1	718	$819	1	660	$800
2	672	743	2	602	587
3	603	680	3	648	715
4	557	792	4	600	700
5	627	693	5	585	600
6	608	660			
7	638	700			

It will be observed that in the seven-county group the order of merit runs—1, 2, 7, 5, 6, 3, 4; the order of salaries—1, 4, 2, 3, 5, 3, 6. The scale for the smaller group is 1, 3, 2, 4, 5 for merit, and 1, 3, 4, 5, 2 for salaries. Comparison of individual scores and salaries of the teachers in each, a more reliable method, shows very much lower coefficients, .28 for the Fifth District and .10 for the Eleventh. The evidence here tends to corroborate the relatively prevalent presumption that the best teachers gravitate toward those places where highest salaries are paid.

The writer has endeavored to avoid making extravagant claims for the investigation here presented. It will indeed not bear anything more than modest pretensions. There seems to be warrant, however, for holding that it embodies some things of value in relation to the aims held in view in presenting it, as stated in paragraph two. It has at least been a great pleasure to make the attempt to evaluate with some definiteness merit in teachers, whatever actual value there may prove to be in the conclusions toward which it has led.

F. C. LANDSITTEL

OHIO UNIVERSITY,
ATHENS, OHIO

NEW BOOKS

La Rue's The Science and the Art of Teaching

By DANIEL WOLFORD LA RUE, Ph.D., Department of Psychology and Pedagogy, State Normal School, East Stroudsburg, Pa.

Up-to-date theories of method and practice as carried out in the elementary school are here presented in a simple readable form, well within the comprehension of the average normal school student or grade teacher. Phases of psychology which should be thoroughly understood by every teacher are included. Concrete examples make the facts presented both interesting and unforgettable. The style is both simple and picturesque.

The book is arranged to serve as (1) a textbook in method and practice of teaching in normal schools; (2) a text on the art of teaching for teachers' reading circles and extension courses; (3) a book for reference and for study by the individual teacher.

Hart's New American History

By ALBERT BUSHNELL HART, LL.D., Professor of Government, Harvard University.

The publication of a new American history by such an eminent authority as Professor Hart is of special significance in the present world-crisis.

This volume of 702 pages is intended for high school use. In its well-ordered arrangement, its balance and its simple style, it shows the masterly skill of the author. Some of its distinctive features are (1) special attention to the European background of American history, (2) fair-minded treatment of both sides of great issues and wars, (3) emphasis on social and economic conditions and progress.

Betz & Price's A First German Book

By FREDERICK BETZ, A. M., Head of the Department of Modern Languages, East High School, Rochester, N. Y., and WILLIAM RALEIGH PRICE, Ph.D., Inspector in Modern Languages, University of the State of New York, Albany, N. Y.

Expert knowledge of the most progressive methods of teaching the German language in this country has been employed in the making of this book.

It furnishes the necessary material in grammar, oral and written drill, and reading matter for a beginner's course in Junior and Senior High Schools, and is after the direct method.

Each lesson consists of a "story," i. e. a set of connected sentences, or an anecdote. Every story is followed by a vocabulary, (in German), a set of question, grammatical explanations, and exercises. There are attractive illustrations.

AMERICAN BOOK COMPANY

NEW YORK CINCINNATI CHICAGO BOSTON ATLANTA

New and Standard Spanish Books

Warshaw's Spanish-American Composition

By JACOB WARSHAW, Associate Professor in the University of Missouri. 156 pp. 12mo. 90 cents.

It deals with historical South American figures; includes description of unusual natural and industrial features; tells of the industrial and cultural progress of various Latin-American countries and cities; and emphasizes our relations with South America thru such agencies as the Pan-American Union.

Fuentes and François' Trip to Latin America

With conversation and composition exercises and vocabulary by VENTURA FUENTES and VICTOR E. FRANÇOIS of the Romance Language Department of the College of the City of New York. 196 pp. 12mo. Illustrated. 80 cents.

The outstanding feature of this first-year Spanish Reader is the combination of great simplicity with interest of material. It is easy enough to be begun at the very outset of the course.

It describes not only the people, commerce and industries of Latin-America, but also the principal cities and national heroes. Narrative, dialog and letters give variety.

Albes: Viajando por Sud América

Abridged and edited with notes, vocabulary and questions by JACOB WARSHAW, Associate Professor in the University of Missouri. 226 pp. 12mo. Illustrated. 80 cents.

In 1912 the *Boletin de la Unión Panamericana* publisht a series of articles by Mr. Edward Albes of the Pan-American Union staff describing his then recent trip to South America. Professor Warshaw, with the kind permission of the author, has prepared a slightly abridged form of this series for classroom use.

It is a lively and highly interesting account of present-day South America. After the first stage from New York to Buenos Aires, the tour led across the Argentine pampas and over the Andes to Santiago, Chile, thence to Valparaiso to rejoin the ship and home thru the beautiful scenes of the Strait of Magellan, taking in the Panama Canal as the last stop. The interest is heightened by remarkable photographs taken on the trip.

Henry Holt and Company

19 West 44th St. NEW YORK | 6 Park St. BOSTON | 2451 Prairie Ave. CHICAGO

SCHOOL AND SOCIETY

A weekly journal covering the whole field of Education in relation to the problems of American democracy. Published every Saturday.

Annual Subscription, $3.00
Single Numbers, 10 cents

SCIENCE

A weekly journal devoted to the advancement of science. Published every Friday.

Annual Subscription, $5.00
Single Numbers, 15 cents

THE SCIENTIFIC MONTHLY

An illustrated magazine, devoted to the diffusion of science, publishing articles by leading authorities in all departments of pure and applied science, including the applications of science to education and society.

Annual Subscription, $3.00
Single Numbers, 30 cents

THE AMERICAN NATURALIST

A monthly journal, established in 1867, devoted to the biological sciences with special reference to the factors of organic evolution.

Annual Subscription, $4.00
Single Numbers, 40 cents

SCIENCE AND EDUCATION

A series of volumes for the promotion of scientific research and educational progress.

Volume I. The Foundations of Science
By H. POINCARÉ. Containing the authorized English translation by George Bruce Halsted of "Science and Hypothesis," "The Value of Science," and "Science and Method." Price $3.00 net.

Volume II. Medical Research and Education
By RICHARD MILLS PEARCE, WILLIAM H. WELCH, C. S. MINOT and other authors. Price $3.00 net.

Volume III. University Control
By J. MCKEEN CATTELL and other authors. Price $3.00 net.

Volume IV. Academic Slavery and Other Addresses. By J. MCKEEN CATTELL. *In press.*

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.

Sub-Station 84: New York

Just Published

A Manual of Personal Hygiene

By George D. Bussey
East Boston High School

A little book of only 156 pages that gives very compactly the facts of personal hygiene that every child should know. These facts are presented in such a reasonable way that their influence is felt beyond the classroom. Children do not forget the lessons as soon as the book is closed. The author has learned from personal experience in teaching that the children try them out and prove to themselves the truth of the statements.

The book may be used in high schools, junior high schools and the upper grades of the elementary schools.

60 cents

GINN AND COMPANY

70 Fifth Ave. New York

The first five volumes of SCHOOL AND SOCIETY can still be supplied at the regular price of $1.50 per volume, and libraries and individuals wishing to keep complete sets of the journal should obtain these volumes before the supply is exhausted.

OPTIC PROJECTION

Principles, installation and use of the Magic Lantern, Opaque Lantern, Projection Microscope and Moving Picture Machine; 700 pages, 400 figs. By SIMON HENRY GAGE, B.S., and HENRY PHELPS GAGE, PH.D. Postpaid, $3.00.

THE COMSTOCK PUBLISHING CO., Ithaca, N Y.

MARINE BIOLOGICAL LABORATORY
WOODS HOLE, MASS.
Biological Material

1. **Zoology.** Preserved material of all types of animals for class work and for the museum.
2. **Embryology.** Stages of some invertebrates, fishes (including Acanthias, Amia and Lepidosteus), Amphibia, and some mammals.
3. **Botany.** Preserved material of Algae, Fungi, Liverworts and Mosses. Price lists furnished on application to

GEORGE M. GRAY, Curator, Woods Hole, Mass.

AUS NAH UND FERN *A Text in Periodical Form for German Classes* Vol. 9
Used as a textbook in representative schools in 47 states. Send 20c. for sample copy; 70c. per year. In clubs of 6 or more, 50c. each.
Scores of schools are placing increased class orders for *Aus Nah und Fern.*
Special features: science notes, travel sketches, jokes, poems, dialogs, plays, stories, anecdotes, illustrations, vocabulary.
The Adjutant General of the U. S. Army recently distributed many copies of *Aus Nah und Fern* among the Officers' Training Camps.
TWO SPANISH PLAYS *For Elementary Spanish Classes* **(In preparation)**
A. G. MERRILL, Pub., *Care of* Francis W. Parker School, Webster Ave., near Lincoln Park, Chicago, Ill.

Optical Efficiency

THE SUPREME TEST of any optical instrument lies in its *lens components.* This is especially true of the microscope. No matter how many elaborate styles and devices may be introduced to influence the buyer, the main question still persists, *How well* can I see with this instrument?

Bausch & Lomb Microscopes predominate in the laboratories of the country because Bausch & Lomb *quality* is an unvarying *quantity.*

"8 reasons Why You Should Buy Bausch & Lomb Microscopes" is a circular which explains the design and construction of our microscopes—with reasons.

Write for it.

Bausch & Lomb Optical Co.

422 ST. PAUL STREET ROCHESTER, N.Y.

New York Washington Chicago San Francisco

Leading American Makers of Microscopes, Photomicrographic and Projection Apparatus (Balopticons), Photographic and Ophthalmic Lenses, Stereo-Prism Binoculars and other High Grade Optical Products.